

TYPES OF RELATIONSHIP ASYMMETRY AND THE IMPLEMENTATION OF SUSTAINABLE PRODUCT DEVELOPMENT IN FASHION SUPPLY CHAINS

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ABSTRACT

This research identifies the types of relationship asymmetry within sustainable fashion supply chains and the role of relationship asymmetry in sustainable product development in fashion supply chains in the UK. This research that is based on supply chain experiences of experts highlighted that how relational asymmetries hinder sustainable product development in fashion supply chains, but also how sustainable behaviours, values and policies help to overcome the influence of relational asymmetry in sustainable product development process.

Keywords: sustainable product development, relational asymmetry, fashion supply chain

INTRODUCTION

Sustainable product development plays a very important role in reducing environmental impacts of products. The reduction of environmental impacts of fashion products can be achieved through material choices, production techniques, distribution methods, supply chain designs and capability development of suppliers. The progress of these developments can also be assessed through life cycle assessment. Extending garments' life span via design, maintenance and re-use of clothing is an effective way of reducing the environmental impact of fashion industry. Three months of extended life a cloth could reduce water and carbon footprints by 5 to 10 percent (WRAP, 2012).

Previous research has focused on product life span and has identified a need for further research into physical clothing longevity (WRAP, 2015). However, supply chain relationships between buyers and suppliers have been paid a limited attention in relation to the extension of product life span and sustainable product development. Therefore, this research focuses on relationship perspectives in sustainability because of the limited application of the relational view identified in the sustainability literature (Toubolic and Walker, 2015; Talay, Oxborrow and Brindley, 2018), and its impact on advances in *sustainable product development* (Curwen et al., 2012). Talay, Oxborrow and Brindley (2018) found that asymmetric power determines product innovation in sustainable supply chains. Therefore, the research focuses on power asymmetries in sustainable supply chain relationships and its impact on sustainable product development. Power asymmetries in supply chain relationships must be a key focus in understanding sustainability and responsibility of supply chains (Bostrom et al., 2015). The research will be seeking relationship insights from clothing retailers and supplier manufacturers. This research has funded by Sustainable Futures Research group based in Nottingham Business School, UK.

This research aims to contribute to our understanding how types of relationship asymmetry can foster or impede the implementation of sustainability *behaviours, values and policies* in sustainable product development in apparel supply chains in the UK that is characterized by powerful retailers and small apparel suppliers. This research project aims to address the following research purpose:

- To identify the types of relationship asymmetry evident in the implementation of *sustainable production* in fashion supply chains between small suppliers and large retailers.
- To investigate the role of relationship asymmetry types in the implementation of *sustainability behaviours, values and policies* in sustainable product development in fashion supply chains.

LITERATURE REVIEW

Sustainable product development and the challenges

Traditional new product development models suggest linear stage-gate models, each developed product must pass before progressing to the next stage of development. Such models focus on cross-disciplinary processes, rather than being based upon separate company functions (Trott, 2017). However, with limited amount of experience of addressing environmental sustainability, some companies can have difficulty to assess the time and planning activities. Therefore, flexible approach to planning the each stage of sustainable product development is recommended. It should be achieved through creating additional collaboration opportunities to address the sustainability in material choices, testing and value adding activities (Luchs, Brower, & Chitturi, 2012).

Co-operation in the areas of designing, purchasing, supply, marketing and corporate social responsibilities among different parties across the product life-cycle result in customer value creation and sustainable designs and production (Curwen et al., 2012 and Hong, 2009). Furthermore, cross-functional teams of the involving parties collectively address principles of design for sustainable clothing: *company mandate, shared values, knowledge-sharing, re-organisation and supply chain simplification (ibid)*; and this also assist a creative approach to design and boost emotional durability (Curwen et al., 2012; Niinimäki, 2012).

Current business models do not serve the aim of sustainable design and long life span for clothes because low cost, short delivery and brand priorities cause difficulties in this process (Cooper et al., 2013). A limited number of small firms have been able to redesign their whole supply chains (Caniato et al., 2012). In addition, Peattie and Peattie (2008) posit that marketers can influence consumption reduction but existing models require adaptations.

New product development is the early stage activity before the mass product manufacturing starts, decisions are made by product developers that guide manufacturing and consumption of customers towards a sustainable direction. The 'triple bottom-line' concept has become prominent for addressing the importance for organisations to pay equal attention to social and environmental sustainability alongside financial sustainability, (Elkington, 2002). In addition, corporate social responsibility policies have become standard practices for organisations to implement their social and environmental sustainability goals while retaining the financial sustainability. Therefore, new product development processes play crucial role for the implementation of CSR and for achieving sustainability goals (Goworek, 2011).

New product development and sustainable supply chain management

Key aspects of implementing sustainable supply chain management include supplier development, high level of co-operation, consumer and retailer buying pressure, legislation, and senior management buy-in (Sharma, Iyer, Mehrotra, & Krishnan, 2010; Seuring & Muller, 2008), all of which can also relate directly to new product development. A related concept, Green Supply Chain Management, Choi and Hwang (2015) found that GSCM practices help developing capabilities, knowledge and resources of parties and lead to environmental as well as financial improvements, especially where there were high levels of collaboration throughout the supply chain because eco-design depends upon collaboration for its implementation.

Curwen et al., (2012) emphasised that developing strong and longer lasting relationships between focal company and its suppliers are vital for sustainable supply chain management and sustainable product development. On the other hand, supplier selection criteria, developing capabilities and knowledge sharing among the collaborating firms also play important role for new product development (Petersen, Handfield, and Ragatz, 2005). In practice, interests of different parties in the new product development process may cause disruptions as a result of the conflicting priorities of the parties (Goworek et al., 2018). Therefore, collaborations in the supply chain relationships should be enhanced further to achieve effective governance of supply chain sustainability (Li, Zhao, Shi, and Li, 2014). Strong relational ties between fashion buyers and fashion suppliers support innovativeness. Thus, this may enable the parties to develop sustainable products (Jean et al., 2017).

Small suppliers play an important role in the fashion supply chain, but engrained and growing retailer dominance is an important characteristic (Johnsen & Ford, 2008; Talay, Oxborrow & Brindley, 2018), exacerbated by the increased prevalence of retailers' private label goods, where retailers take control of

branding over the supplier (Meehan & Wright, 2012). The fashion industry epitomises the use of outsourcing, delocalised production systems and decentralised management systems, requiring that activities are coordinated across several countries and organisations (Abernathy, Dunlop, Hammond, & Weil, 1999). On the other hand, maintaining sustainability in terms of environmental impact and corporate social responsibility becomes increasingly difficult for buyer organisations as the number of suitable suppliers is limited (Runfola & Guercini, 2013), potentially affecting the costs of supply, while reducing the negotiation power of buyers (Gadde & Håkansson, 2001).

Power asymmetry in sustainable supply chains and sustainable product development

Power asymmetries in supply chain relationships must be a key focus in understanding sustainability and responsibility in supply chains because they are related to obstacles and outcomes (Bostrom et al., 2015). Talay, Oxborrow and Brindley (2018) found that asymmetric power determines the product innovation in sustainable supply chains. Furthermore, power asymmetries also determine the capability development of small suppliers that may be disadvantage for small suppliers to contribute and involve sustainable product development processes.

Power asymmetry in large buyer and small supplier relationships exist and it may influence the implementation of sustainability and other possible outcomes within supply chains (Millington, 2008; Pedersen & Andersen, 2006). Powerful retailers pressurise suppliers into adopting their practices that leads to various concerns about long-term relationships in supply chains. Therefore, appropriate practices should be developed to minimise that pressure and applicable inducements can be implemented for the increased exchange of information between these partners in asymmetric relationships (Maglaras, Bourlakis, & Fotopoulos, 2015). Fast fashion companies focus on integrating suppliers into their existing supply chain management system and set criteria on sustainability for their suppliers, imposing supplier compliance with respect to their code of conduct, and employing rigorous auditing activities to prevent production problems for effective SSCM (Turker and Altuntas, 2014). Consequently, adaptive behaviour is expected from the firms to involve in supply chain relationships and improve operational performance and progress towards achieving sustainable product development.

From buyer's point of view, a power asymmetry is a problem because lack of power reduces the ability to enforce standards and requirements on producers and builds barriers to activate sustainable innovations (Mylan et al., 2014). In addition, a lack of power in the supply chain means not-being-responsible and committed to improve social and environmental production issues (Borjeson et al., 2014). On the other hand, from the supplier's point of view, the power asymmetry is a problem because a lack of power reduces the flexibility and ability to gain benefit from the sustainability standards, as well as to contribute to the form and content of these standards (Vellema and van Wijk, J, 2014).

Research Design and Methods

Why the apparel supply chain in the UK

“Fast fashion” phenomenon; cheap clothing that promote repurchasing attitudes of consumers as a result of the globalised fashion manufacturing and supply chains. The Environmental Audit Committee in the UK has started an investigation the social and environmental impact of disposable ‘fast fashion’ and the wider clothing industry in 2018. The fashion industry has contributed £28.1 billion to national economy compared to 2009 which was £21 billion (The British Fashion Council, 2015). In recent years, British cloth manufacturing has redeveloped and growth again after a huge exodus of fashion manufacturers to Asia in 1980s. However, this has raised some concerns that the need for quick turn-around in the fashion supply chain to facilitate the demand for “fast fashion” has caused to poor working conditions in clothing factories in the UK. Further, The Committee will also examine the sustainability of clothing production in relation to the UK’s social and environmental commitments under the UN Sustainable Development Goals.

Qualitative Data Collection and Sampling

The research design adopts a multiple exploratory case study approach (Yin, 2003) to enable rich data to be gathered on the experiences of sustainable product development in the types of asymmetric apparel supply chain relationship. The research project will take a qualitative approach to overcome some of the methodological challenges associated with studying small supplier firms. Primary data was collected through 15 interviews with 10 small apparel firms and 5 retailers due to maintain the consistency in data collection

and gathering the complete set of knowledge from the experts on both sides. The interview analysis enabled us to explore further into sustainable product development within the asymmetric relationships in apparel relationships. Participants all had five or more years of experience in production processes and supply chain relations with the retailers they trade. Therefore, they were able to provide depth answers to our interview questions. Participants' companies are all situated in UK. Three selection criteria were used in the selection of participant firms: a) implementing sustainability policies in their production, b) involvement of sustainable product development processes c) operating as apparel supplier firm and apparel retailer firm.

Findings

Initial findings of this study have highlighted that the types of asymmetries in sustainable fashion supply chain relationships determine sustainable product development process which indicates some implications for the parties in sustainable supply chains because the implications are related to company mandate, share values, knowledge sharing, re-organisation and supply chain simplification. In the literature, asymmetry types in supply chains have been classified by Johnsen and Machat (2006) as uniform asymmetry, transitional asymmetry and co-existing asymmetry. In this study, we have identified that the relational asymmetries between retail buyers and apparel suppliers are fit in with Johnsen and Machat's classification.

Uniform Relationship Asymmetry (high level of asymmetry in characteristics of supplier's relationships with retailers) Potential problems for sustainable product development have been found: A restricted range of relationships are offered to fashion suppliers. There are limited opportunities to develop sustainable production capability. Therefore, a lack of understanding is apparent within the suppliers regarding environmental and social sustainability goals of retailer. No involvement on sustainable production management approaches and policies of retailers. This has also caused no sustainable goal setting ability for suppliers and disruptions for adaptation of strategic and operational sustainability goals and values of retailers. On the other hand, suppliers need to deal with a high level of change that leads uncertainty in sustainable production patterns and behaviour of retailer. This is also off-putting and reactive approach to sustainable product development. There may be consequences for the newly developed sustainable products' reliability and credibility that partially satisfy the expected environmental and social sustainability goals. However, economic sustainability is the main priority for retailers in this relational asymmetry.

Transitional Relationship Asymmetry (characteristics of supplier's relationships with retailers in transition from asymmetry to symmetry) There are changing patterns of relationships. Suppliers are able to develop different sustainable product development capabilities. They are also gain more understanding how to set priorities for developing different sustainable product types in relationships with retailers. Suppliers also become more aware of the environmental and social sustainability goals of retailers. Therefore, this has also given suppliers an ability to offer conceptual sustainable product development ideas. This was also satisfying retailers' economic sustainability goals. However, making the final decision is still in the hands of retailers. Moreover, developing suppliers' understanding of sustainable product and production processes lead different strategic and operational adaptation to meet sustainable production requirements of different types of retailers. This is an important gain for suppliers because it is evident that they are able to transfer their developing sustainable product development capabilities into different relationships and becoming competitive in sustainable supply chains. They also contribute environmental and social sustainability at local level more, however, involvement on sustainable product development with retailers but not in those of strategic priority. Finally, it is apparent that cautious and less formal approach to sustainable product development is apparent.

Co-Existing Relationship Asymmetry (elements of asymmetry and symmetry both present in characteristics of supplier's relationships with retailers). In this type of asymmetric relationship, the both parties are active and have more opportunities for sustainable product development. Both parties have many different relationships and sustainable production types and sustainable projects, stretching resources to enable their effective management. Therefore, the main concern is how to make a fine balance among environmental, social and economic sustainability goals and reflect the balance on sustainable product development process. Suppliers have more opportunity to decide which sustainable production methods to develop or reject in relationships with retailers and strategic and operational adaptation to meet the sustainable product development projects. In this relational asymmetry, there is a high level of change in

retailers and suppliers' relationship portfolio and pattern of sustainable product development types. This is beneficial that helps to generate new ideas and form relationships with new partners and also encouraging and informal approach to sustainable product development that may lead sustainable competitive advantage for retailers and suppliers in the market place.

DISCUSSION AND CONCLUSION

Retailer-supplier relationships in apparel supply chains have different types of asymmetry and increasing power of retailers are evident (Oxborrow and Brindley, 2014). However, different types of asymmetric relationships have been found in this study beneficial as well as destructive for apparel suppliers and sustainable product development. Asymmetries offers development opportunities and benefits for apparel suppliers in the areas of capability development, production processes and innovation Meehan and Wright (2012), and developing collective interest with retailers (Corsaro & Snehota, 2011). Furthermore, we found that in uniform and transitional asymmetries with restricted and limited opportunities given suppliers to involve, may have some consequences for retailers to meet environmental and social sustainability goals in sustainable supply chains.

Asymmetric power use of retailers is related to the increasing dominance, holding resources and position in the supply chain Meehan and Wright (2012). There is also evidence in our findings that retailers use their asymmetric power in sustainable supply chain relationships with suppliers in order to take control and hold vital resources. However, this helps them only for their economic sustainability goals but on the other hand environmental and social sustainability are ignored. In the long term, this can lead retailers to face economic losses as result of ignorance other aspects of sustainability while public and governments approach to sustainability holistically: triple bottom approach of sustainability.

Furthermore, the findings in this study indicated that different types of asymmetric power in sustainable supply chain influence new product development process in these areas *company mandate*, *shared values*, *knowledge-sharing*, *re-organisation* and *supply chain simplification* (Curwen et al., 2012). Each step in sustainable product development dictates and offers different supply chain management practices for each party involve in the process. For example, a level of adaptation, collaboration, value system and strategic involvement in decision making process regarding sustainable product development which is different than traditional new product development process; its focus is mainly on economic gain and price base competition. Moreover, this research has brought out a new inside and understanding how types of asymmetries in supply apparel supply chains may impact sustainable product development and their impact to the environment and society. The future studies would explore the same phenomenon in different industrial context to have a full clear picture of the dynamics of power asymmetries in product development processes.

All in all, the findings have demonstrated that the different types of asymmetries: uniform asymmetry, transitional asymmetry and co-existing asymmetry suggest different priorities for suppliers and retailers to focus in the triple bottom concept of sustainability. For example: uniform asymmetry focuses more on economic sustainability while transitional and co-existing asymmetries focus more on environmental and social aspects of sustainability. Therefore, sustainable product development will face challenges.

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